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THE  
INTRODUCTORY LECTURE,

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BY

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## INTRODUCTORY LECTURE.

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GENTLEMEN,—It has devolved upon me this year to deliver, in accordance with prescribed custom, the introductory lecture to the course of systematic instruction upon which you are about to enter. At the outset I am free to confess that I have been not a little perplexed and troubled about what I ought most fitly to say ; like many of my predecessors in the office, I have found the choice of subject beset with difficulties, and I have small hope that I can say anything to redeem the usual barrenness of the occasion. Standing here, I cannot but call to mind that it is just twenty-five years since I, sitting where one of you now sits, listened to my first introductory lecture from the lips—mute, alas ! now for ever—of one whose pure and gentle nature attracted in no common measure the esteem, the respect, and the affection of all who knew him—I mean the late Dr. Parkes. It is an extraordinary, almost an unparalleled, thing to say of any man, that no one who heard mention made of his name ever heard an ill word said of him ; but I believe that this was strictly true of Parkes. His life, lovely and of good report throughout, was indeed a practical refutation of the saying—“ Woe unto you when all men shall speak well of you.” If I could sketch in striking outline the features of his character, and set forth justly the pure course of his life, showing with what patient industry and entire sincerity of insight he worked in scientific enquiries, how upright he was in all his ways, and how kindly considerate to others—how he lived, and how, his work faithfully done, he died—I should probably give you an inspiring and most useful introductory lecture ; for I

should present to you a noble example, the labour to imitate which would be an excellent scientific and moral training. But that has been done with more or less completeness by various persons, though not always perhaps with the discrimination which one would wish to see shown in the appreciation of such a character. It is a very amiable wish to say everything good of a man when he is silent for ever, and the vocabulary of flattering words is apt to be exhausted in the endeavour to gratify this feeling ; the effect sometimes being that the actual features of the character are blurred, and something which is intended to be very perfect, but which is very unreal, is produced. It seems to me that the distinguishing characteristic of Parkes, that by which mainly he was what he was, was not so much originality or height of intellect—in this others have equalled or surpassed him—as the height of his moral stature—in this perhaps he has hardly ever been surpassed ; and that the grand lesson to be learned from the extraordinary esteem and affection which he inspired, from the infection of earnestness and sincerity which spread from him, and from the elevating influence which he exerted upon those who were brought into close converse with him, is a lesson which the history of human progress through the ages teaches too, and which needs much to be had in remembrance in these days of the glorification of science. It is this : that great as is knowledge the moral nature is greater still ; that the impulses of evolution which move the world come not from the intellect, but from the heart ; that he who would work upon the hearts of others must speak to them from the heart ; that everywhere and always we have to recognise the predominance of the heart over the intellect.

Perhaps if I could recall vividly the thoughts and feelings of my mind when sitting there twenty-five years ago, and compare, or rather contrast, them with my thoughts and feelings now, I might extract from the comparison the essence of a quarter of a century's experience of life, and impart to you what it will

probably take you a quarter of a century to acquire. But I am doubtful whether that would not be to do you a great disservice. For I could hardly fail thereby to take much heart out of your hopes, much ardour out of your enthusiasm, much energy out of your exertions. Moreover, I feel pretty sure that what I could say, however wisely it might be said, would not be of the least use to you. Neither nations nor individuals profit much by the experience of other nations or of other individuals; they must go through their experience for themselves, learning through suffering, succeeding through blundering, attaining to the calmness of wisdom through the fevers of passion; and many times only when opportunities are gone, and their consequences in irrevocable operation, is it seen perhaps how much better use might have been made of them. No doubt there is wise purpose in this inability of the young to take home and assimilate the experience of those who are older; for I know not how they could preserve that enthusiasm and freshness of spirit which make life itself a joy, and beguile them to pursue with eagerness its aims, were their illusions destroyed, as illusions one after another are destroyed by experience. In the full stream of its young energy, life is too little conscious for reflection—to live is happiness enough; in its later stages more and more, as the heart is applied to know wisdom, is it felt to be vanity and vexation of spirit. This may seem a hard doctrine, but it is true; it has been the experience of the greatest sages of all times; it is the central thought of the great religious systems of the world.

Let me pass, however, from reflections which, if pursued, might tend to dishearten rather than to hearten you, and endeavour to show you that, as things go, you have made a good choice of a profession for your life's work. I should be thought to have ill discharged the function of introductory lecturer by preaching a gospel of pessimism and inoculating you at the outset of your career with a despair of the littleness of life.

Whatever the motive which has made you choose the medical profession as your life-career—and I suppose this has in most cases been the advice or example of others, or perhaps some quite accidental influence, for it is a startling consideration on what little circumstances the great issues of life often turn—you will not, I think, ever have cause to regret your choice if you look to the higher aim of it, and to that which is the proper end of human life. But on that condition only. It is not a profession which one who is ambitious of wordly distinction, or eager to accumulate much riches, should choose. You might, with prudence and industry, get vastly richer on the Stock Exchange or in commerce in a short time, than you will probably after the labour of a long life in medical practice; and if you would aspire to gain a peerage or other ornamental thing of that kind, you would have done better to have gone into the army, and to have set before you as an aim, not the saving but the destruction of life; or to the bar, and have sold the highest exertions of your intellect to advocate the cause, whether the cause of the oppressor or of the oppressed, for which you were retained. Peerages don't come our way, and I am heartily glad that they do not, for I much fear that there would not be the strength of mind to reject them; that a pitiful social ambition might tempt us to spoil the simple intrinsic nobility of our vocation with the outworn decorations of a childish stage of human progress. If medical practice be pursued as a mere means of money-getting, assuredly it causes the deepest demoralization of him who so uses it, as best things turned to basest ends breed the greatest corruption. He who deliberately applies himself to take the utmost advantage of the suffering and the feebleness of humanity, coming to him for aid in its anguish and its utter helplessness, in order to make his profit—and we may hope there are not many creatures of that vileness in the profession—may have large success in his low aim, but he discovers a meanness and a degradation of



nature which are a grievous shame to his kind, and which devils might almost disdain.

But if you look to what is the true end of knowledge and work—to relieve the suffering and to minister to the comfort of man's estate, to lessen the sum of human sorrow on earth—you have chosen a profession which yields the fullest satisfaction to your aim and the largest scope to your work. We learn in order to act, the end of all knowledge being action; and the end of all action is to promote the welfare and the progress of mankind upon earth. In no profession are the opportunities of doing this good work so great and constant as in ours; to the least of us, as to the greatest, occasions of tender sympathy and patient help occur every hour in the daily routine of our work; and no profession, therefore, rests so little for appreciation upon any adventitious circumstance of time or place, or so little needs extraneous titles of honour to give it dignity and respect. Put a doctor in the midst of the wildest savages, and they will respect the "medicine man," when the lawyer's fluent sophistry and the preacher's pathetic eloquence would not gain them consideration or even save them from death. Livingstone passed unharmed and esteemed among the savage tribes of Africa under the protection of his medical skill; and Christ himself cultivated the character and functions of a healer of disease, not only because in that capacity he went about doing good, but probably also, as De Quincey surmised, for the secret reason that he thus disarmed the jealousy and suspicion which the ruling authorities might otherwise have felt of the crowds which he drew about him. When the mighty fabric of the Roman Empire, penetrated by internal decay, at last fell to pieces under the successive assaults of the Goths, and the Vandals, and the Huns, many thousand persons were, as Gibbon tells us, taken captive and distributed through the deserts of Scythia; and it is interesting to note what was the relative value of persons under these circumstances. "The skill of an eminent

lawyer would excite only their contempt or their abhorrence. The vain sophist or grave philosopher who had enjoyed the flattering applause of the schools was mortified to find that his robust servant was a captive of more value and importance than himself. But the merit of the physician was received with universal favour and respect: the barbarians who despised death might be apprehensive of disease." So long as man deems it the most important thing in the world to him that he should go on living—and he does that commonly as long as he is alive—so long will he hold in favour and esteem him whom he believes able to prevent or to mitigate the suffering of disease, and to keep at bay "the last enemy," death. It has always been so—"Honour a physician with the honour due unto him for the uses which ye may have of him; for the Lord hath created him."

Having seen how good a thing is the direct work of relieving suffering by medical art, let me now go on to point out that the training through which you go in order to fit yourselves to do this is excellently well adapted to make the most of your intellect as an instrument of knowledge. It seems to me that no education which is given anywhere, taking it all in all, is better than that through which it is necessary to go in order to become a thoroughly accomplished physician. You are brought into direct contact with the facts of nature, face to face with them, from the beginning of your course; step by step you advance in the practice of observation and reflection from more simple to more complex phenomena, and so you learn to make the order of your ideas conform gradually to the order of nature. That is real instruction; moreover, it is instruction at first hand. In intercourse with nature sophistry and pretence avail nothing; sincerity and humility and veracity of mind are essential; we must learn patiently her laws, and, learning, obey them, or we ourselves, our contemporaries, or our posterity will suffer infallibly from the violation. There is no possibility of



hoodwinking those eternal laws which, in our dealings with them, never make a mistake and never overlook one, never forego an advantage, never shrink to exact retribution, never feel remorse. When a person leaves college with a very respectable knowledge of Greek and Latin authors, and with little or nothing more than that, it seems preposterous that he should think himself an educated person. If he has learned nothing about the stars above his head and the earth beneath his feet; nothing about the nature of the air which he breathes, of the water which he drinks, of the food which he eats; cannot tell why water rises in a pump, or how a man breathes, and why he dies if he cannot get air to breathe; knows nothing whatever of the laws of the world in which he lives and of which he is a part;—he is surely a profound ignoramus, notwithstanding that he may be able to make indifferent Greek or Latin verses. I would not for a moment undervalue the priceless benefits of a knowledge of Greek and Latin authors; on the contrary, I am sure that a study of the works of those great minds of antiquity, full as they are of the rich stores of human observation and thought, expressed in the most chaste, concise and finished language, produces a discipline of intellect and a refinement of culture which can be got in no other way, and the loss of which in youth nothing gained afterwards will ever entirely compensate for; but I am sure also that if Plato or Aristotle or any of these great thinkers of antiquity were to live again now, he would look with amazement and compassion, if not with contempt, on men who are content that education should consist in studying only the writings of the past, in utter neglect of the wonderful works of nature to which the later ages of mankind have gained access, and of the vast stores of knowledge which have been gradually accumulated by the patient labours of successive generations of men. He would be apt, I think, to say something of this kind—"Good Heavens! we lived more than two thousand years ago; have you in all that

time gained no new experience of men and things which it would be well to make an essential part of the intellectual culture of your children? Is it education enough for life now to let them learn from us what we thought of men and things more than two thousand years ago, and to train them in a study of the structure of our dead language?" To state the matter so sufficeth to expose its absurdity.

Now the training of a medical man, when thorough, is admirable in this respect—that it follows the order of nature, beginning with the less complex and rising to the more complex sciences; using the lower as a ladder by which to mount up to the higher. Coming to his work, as he certainly should do, with a fair knowledge of mathematics and physics, he proceeds to the study of chemistry, and passes on thence to the study of physiology; so he lays deep and firm the scientific groundwork for the study of the disorders of the structure and functions of the body, which is to be his ultimate special work. Without the foundations of the pre-requisite studies he will not be a thoroughly well-grounded and cultivated physician, who may be relied upon to perfect his knowledge by experience through life, although he may no doubt be a fair practitioner in the routine which he has been taught, or, if he devotes himself to surgery, skilful as a mere operator. A knowledge of the simpler and more general science is an essential pre-requisite to the study of the more complex and special science. Physics lies beneath chemistry; in physics and in chemistry we search for those intimate operations of matter which lie at the foundation of physiology; and physiology in its turn is essential to the construction of the more complex science which is concerned with man in his social relations—that is, sociology. And I may observe by the way that psychology, which is an important study for the man who has to put right the disorders of the minds and bodies of his kind, demands not only a thorough knowledge of physiology, but observation also of man in his social relations. Each science

rests upon the one below it, but, reflecting the increasing complexity of nature as we rise from the movements of masses to the movements of molecules of matter, and to the combinations and relations of atoms, from dead again to living matter, from the simplest forms of life to complex organisms, and from organisms to the social union of organisms, contains in ascending scale something more than the science below it—something which constitutes its autonomy as a science. Physiology being placed in this scale, as you perceive; between chemistry and sociology, is on that account a most instructive study at the present time, when chemistry has made great progress towards scientific exactitude, and when the cultivation of the new field of social science is just being entered upon. There is no science in fact which yields such rich promise of large discoveries in the immediate future, and no science the discoveries of which, when applied to human needs, will do so much to lessen physical suffering. Fortunate are you then in the training which prepares you for the study, and in the lot which at this particular era has fixed your work in the pursuit, of a science which promises so great an abundance of good fruit!

One warning I would stop a moment here to urge. While recognising the subordination of the sciences, we ought not to overlook the fact that all the sciences are at bottom artificial divisions; that the world is not divided rigorously into those different domains which we call physics, chemistry, physiology, and the like; that we make the divisions for our convenience according to the complexity of the phenomena, not because we discover them in nature. Nature is one and continuous, and takes not the least notice of the arbitrary divisions which we find it necessary to make. It would seem a very obvious distinction between plant and animal; and yet if we push our investigations into that border territory of nature where animal and vegetable life touch, we meet with so-called monads—the *Heteromita*, for example—which may be referred

with equal justice to either kingdom; there are organisms which we think vegetable having characters which we call animal, and organisms which we call animal having characters which we think vegetable; there is, in truth, no line of demarcation, but instead an insensible series of gradations, and no man can say where the one kingdom ends and the other begins. In like manner, notwithstanding the seemingly gross and palpable distinction between living and dead matter, any one who sets himself to work to find out where life begins will be hard put to it to draw a line of separation, and more hard put to it when called upon to make good his division. Man himself, much as he makes of himself, is not separated from the rest of nature by an impassable gulf; he modifies nature largely, it is true, but the art by which he does that is nature; he is a part of the order thereof—the latest product of the evolution which went on for countless ages before he appeared upon earth, which is going on now in his progress, his knowledge and his moral feelings being agencies in the process, and which, for anything we know, will go on for countless ages after the earth, which he has ceased to replenish and to subdue, has fallen to the condition in which the moon now is, and rolls on its solitary way through space, a cold and desert globe, the tomb of all human aspirations, sorrows, sins, and achievements. In making use then of the arbitrary divisions of our sciences, we ought never to lose hold of the actual unity and continuity of nature; never to overlook the fact that there is not a single truth in any science which has not its essential relations with the truths of all sciences; never to forget that the least things and the greatest are indissolubly bound together as equally essential elements of the intimately connected and mysterious whole which we call the universe. It may seem a fanciful saying, but there is a truth in it, that you cannot utter an exclamation, strike a note on a piano, move a grain of sand from its place, without affecting the entire universe.



Now the systematic training of the mind in conformity with the order of nature, through patient observation and careful induction, the knowledge of nature which is got by becoming, as Bacon says, her servant and interpreter, is a tedious business. Men, therefore, have gladly shirked it; they have found it much easier to attribute phenomena to some metaphysical entity which they have created out of a mental abstraction, or to invoke a supernatural cause to account for them, than to find out the explanation. In consequence of this habit of mind, a body of doctrine has grown up which, having had its day, is now fast becoming effete, but which men will not willingly part with; doctrine comparable, if I may use a physiological comparison, with those organs which, like the thymus gland, have their uses at a certain stage of the body's development, but afterwards, having no longer any function, undergo atrophy. Moreover, men have not only shirked positive enquiry from indolence, but have hated it from hostility. They dread the thought of being shown to be one with nature, and repudiate with abhorrence the suggestion that their bodies and minds will ever receive scientific explanation; as if their bodies and minds would be degraded to something quite different from what they are by being understood like other natural phenomena and described in terms of scientific thought. The supposition strikes them as something like a blasphemy against the nobility of their nature. Hence there is a deep-rooted instinctive hostility to the science that has to do with man, which you will have to take account of in your careers, a hostility which has found partial expression, I think, in the anti-vivisection agitation. There was more in the fierceness of that agitation than a laudable feeling of compassion for the animals—an intensity of acridity betraying another origin; there was the energy of fear and hatred—fear and hatred of the science which threatens the dethronement of man from the pedestal of conceit upon which he has placed himself, and the destruc-



tion of some of his traditional beliefs. But a little reflection might serve to prove to those who are moved by these hostile apprehensions that they are possessed with an unreasoning fear and are disquieting themselves in vain. Let them look beyond the dark circle of their self-love, and they will see that what is good in old creeds does not perish ; that although old forms vanish, as generations and nations pass away, that in them which gave life to them does not pass away, but puts on new forms and survives, as new generations and nations follow and carry onward the work of progress. Better would it be for them to seek for and to foster the good which survives than to lament and defend the old which is corrupt.

Certainly science has not been careful to avoid occasions of offence in its progress ; and of its method and pretensions its votaries have sometimes written in a strain which justly provokes scorn. While proclaiming, then, the praises of observation and induction, and enforcing the value of a mental training which is obtained by studying nature after that method, let me interpose a few words of qualification, in order that I may not be misunderstood. I cannot help feeling that a great deal of questionable doctrine has been propounded concerning the so-called method of induction which science is enjoined rigidly to pursue, and that Bacon would have been aghast had he foreseen the absurdity which some persons in these days describe as his method, and the imbecile procedures of some of those who believe that they are following it. They talk, in fact, of the method of observation and induction, as if it were something to conjure by ; a mechanical process of knowledge-getting which rendered superior mental capacity unnecessary ; a sort of intellectual ladder by which the most stupid beings, if they only planted it properly, might mount up into the highest places of knowledge. That was not Bacon's notion of it : he perceived clearly enough that a man does not see with his eye, but through

it; that seeing in the sense of observation is impossible unless there be behind the eye the intelligence to interpret what is presented to it. The simplest act of perception is indeed more than a mere matter of sense; it is an actual induction or inference in which an important element is contributed by the mind; you cannot look at an ox or an ass, and know either of them to be what it is, without making an induction—can't see, in fact, until you are trained to see. Scientific observation and experimentation—and experiment is only observation aided by artificial means—may be carried on to the last hour of your lives, without any result of the least value, if you have not a mind trained to interpret. Of what use is it to torture nature by strange experiments if you don't understand her language? You might sacrifice a hundred dogs or cats in cruel experiments, and be not a whit wiser at the end of your awful labours. Nature does not vouchsafe an answer to a scientific enquiry unless the intelligent question be put, and the precise experiment made, as Bacon insisted, *ad intentionem ejus quod queritur*; and it is impossible to put the definite question, or to make the precise experiment, unless there be a prudently formed hypothesis in the mind—that is to say, a hypothesis based upon previous careful training in observation of nature's processes and sound reflection upon them. The mind must be informed by patient and sympathetic intercourse with nature; it is enabled then to make new adjustments by means of the knowledge which it has gained through past adjustments—to frame a new and true theory applicable to new experiences by reason of being stored with sound theories derived from past experiences. We shall do well then not to be too much intimidated by what is sometimes said or written in praise of mere observation of so-called facts, and in dispraise of theory, or imagine that any facts can be truly observed, or any science prosecuted with success, unless the well-trained mind co-operates with the senses. As I have said elsewhere—"That some declaim so virulently

against theory is as though the eunuch should declaim against lechery: it is the chastity of impotence.” Happy is the observer who, when he sets to work, has a good theory in his mind. The mischief is when men theorise who have not been trained in habits of accurate observation, or—I might go a step farther, and say—who have not inherited from father or grandfather in the foundations of their nature the lines of veracity of observation and thought on which to develop; for when one notices how persons of a certain eager temperament go on discovering facts which are no facts, and, notwithstanding that they are brayed in the mortar of an annihilating criticism, are not in the least benefitted by the discipline, one cannot help feeling that the observer, like the poet, is born, not made.

But it is time to turn to the direct line of my argument. From what I have said it should appear at what an excellent place of advantage the order of studies for the medical profession is adapted to place you; how wisely it is arranged to train the mind for sound reflection upon those most complex phenomena of nature with which the medical man has to deal—the phenomena of life in health and in disease; and how sadly wrong in theory and mischievous in practice he is likely to be who neglects to lay well the foundations of his mental training. If no practical result were to follow a medical education, if it were not pursued, as it is, for the purposes of the medical art, I believe that one who aspired to fit himself best to understand the world in which he lives and the men with whom he has to do could not do better than go through it; for it would be an excellent foundation on which to build afterwards. The study of man cannot be undertaken with any satisfaction, or carried out with any completeness, except through a previous study of the nature of which he is the present culmination; it is certainly not possible to enter the chamber of the mind without passing through the ante-chamber of the body; and we cannot understand the body unless we understand a good deal of the process

and laws of nature which lie beneath biology. So far then Mr. Lowe appears to be right when he regrets, as he is in the habit of doing, that he was taught so much classical knowledge and no science when he was educated, and contrasts the disadvantages under which he laboured with the advantages which each student at a middle-class school now enjoys. Newspaper critics think that he is making jokes, or firing off paradoxes, and would seemingly rather have Mr. Lowe as he is than Mr. Lowe as he might or would have been; but I am disposed to think that Mr. Lowe's insight has enabled him to see what his critics quite fail to see—that the statesman who has to deal with the relations of men to one another in the world would be better qualified for his work if he had a good fundamental knowledge of the laws of man's nature and constitution and of the laws of the world in which he lives. The scientific statesman—when we get him—will hardly deem it his highest achievement to shrink scared from the grasp of a principle, or his supreme privilege and merit to wait patiently to catch the fitful gusts of an ignorant public opinion.

The application of the principles which I have been enforcing, of learning to know man through nature, the thorough knowledge of his environment and of those his relations to it which constitute his life, must clearly be the foundation of scientific medicine. Here, as elsewhere, prevision for the purposes of action is our aim: we observe and infer in order to foresee, and, foreseeing, to modify and direct; we conquer by obeying, gaining a knowledge of phenomena of living beings in order to make ourselves masters of them, just as by a knowledge of physics and chemistry we gain a mastery over physical nature. It is impossible to treat a sick person, except in the most lamely empirical fashion, without a knowledge of the properties of the organism and of its relations to its environment; for our medical function is to remove the disorder of these relations which is disease, and to restore the harmony of them



which is health. In past times it has been too much the practice to treat the body as if it were an entirely independent kingdom, without regard to its essential relations with surrounding nature, and to try to drive out the enemy which was supposed to have taken possession of it, by pills and potions, as barbarous nations try to drive him out by charms and ceremonies. Now, however, in the recognition of the intimate and constant relations between the organism and its surroundings we are awaking to juster views of our duties as observers and of our work as curers of disease; but it is because of the absence yet of anything like exact knowledge in this respect that medical practice is defective, tentative, empirical, often mere guesswork, and that the most experienced physicians, waiting patiently on nature, aim to do the least harm by the drugs which they employ.

But we are perceiving more clearly day by day a larger application of this principle of looking to the relations of man, to what is around him as well as to what is within him, in the fulfilment of the great purpose of preventing disease. It is in this direction that the future course of medicine lies clearly open, and to this end that we must work; it will rise to the true height of its great vocation when it watches over communities and ministers to the social welfare and progress of the race. I am apt to think that we shall attain to earlier and larger success in preventing the diseases of communities than in curing the diseases of the individual, as men who had been seeing heavy bodies fall to the earth every moment of their lives discovered the law of gravitation for the first time when they began to observe the grand general motions of the heavenly bodies. Indeed, we have already had encouraging success. Look through the yearly death-list of this great city two hundred years ago, and you will find a large proportion of deaths ascribed to diseases which have now been robbed of their sting, if they are not quite extinct. Many persons died every



year then, as that "chief of men," Cromwell, did, from ague : where is the mortality of ague now ? Ague has disappeared with the disappearance, through better drainage, of the damp fogs which occasioned it, as ghosts and other superstitions have vanished with the disappearance, before the light of knowledge, of the fogs of ignorance in which they were engendered. Bloody flux or dysentery seldom occurs now in this country, and is more seldom fatal, but it caused many deaths two hundred years ago. The ravages of small-pox were then terrible, hosts of victims being carried off by it, and many persons who escaped death bearing its marks in blind eyes and hideously scarred features ; but I think we may foresee a day when, Keighley guardians notwithstanding, small-pox will no more afflict a prudent people. Plague, scurvy, and spotted fever, each of which then claimed regularly its yearly tribute of victims, are becoming almost diseases of the past ; and one needs not a prophet's imagination to foresee a time when cholera, scarlatina, fever, phthisis perhaps, and other diseases shall be no more—when preventive medicine shall have reached such a degree of perfection that the occurrence of epidemic disease will be felt as a gross reproach to the community, and when there will be comparatively little for the practitioner to do in the treatment of particular disease. It is unfortunate truly, as it is sadly unseasonable, that just when we see before us this fairer prospect, and when an encouraging beginning of progress has been made under the auspices of Mr. Simon and his well-organised staff, he should have been driven into retirement and his office abolished. But one instance more of the difficulties with which progress has to contend from the selfish intrigues and obstructive apathy of mankind !

You may be disposed perhaps to smile at my outlook as fancifully bright, and befitting only the imaginative flights of an introductory lecture. From the beginning, it may be said, men have, through unrestrained indulgence of their passions,

generated disease, and, however pure their surroundings may be made, they will go on doing the same thing : were a clean sweep made of all disease from the face of the earth to-morrow, they would breed it afresh before to-morrow's to-morrow. No doubt, as they are constituted and trained at present, they would be apt to do so ; but one may hope that the medical science of the future—and here I would carry your imaginations a little way with me—will have a great deal to say in the way of instruction respecting the highest concerns of man's nature and the conduct of his life ; that it will enter a domain which has hitherto been given up exclusively to the moral philosopher and the preacher. I don't certainly propose or suppose that we shall ask these gentlemen to come down from their platform, saying to them something of this kind—" You have been preaching wisdom and goodness of conduct for some thousands of years, and you haven't made much of it. Certainly one result, thus far, is striking enough : that men are devoting their eagerest energies to manufacture the most destructive guns, and are conferring their greatest honours and applause on those who use them with the most destructive effects. For months, until quite lately, the soil of Eastern Europe was deluged with blood shed, amidst unspeakable atrocities, in an entirely needless war, which your statesmen, presumably the highest products of the culture of your epoch, could or would do nothing to check. Stand aside, then, and let us try our method." To speak so would be as foolish as it would be arrogant ; but we may perhaps, without undue presumption, promise them that if they will learn and use the results of our method, they will have a deeper and more stable foundation in the constitution of human nature for their teaching than they have now, and will add much to the efficacy of it by enforcing motives which will touch more keenly the springs of conduct than those which they present. Now let me indicate very briefly, as must needs be, the method by which

medical science is to advance to take possession of this higher ground.

Starting with the trite maxim that before we can act we must learn, it is obvious that before we can teach people to act with more wisdom than they have done in the past, we must give them a better knowledge of their own nature and relations than they have had. This we propose to do by the patient and steadfast application of the method of observation and induction, which has served us so well in the subordinate branches of science, to the highest phenomena of man's being—his thoughts, feelings, and will. The problem is the same here, in fact, as in the lower sciences—to observe in order to foresee, and to foresee in order to modify and direct; and the method is the same. Admitting, as I see not how we can help doing scientifically, that a process of evolution has gone on in nature, and that man, as he now is, is a product of the past carrying on this process in his progress to a higher purpose in the future, it is a natural conclusion that he must, as a part of the order of nature, be studied by the same method as the rest of nature. We have to search back and find out how he came to be what he is, by looking to the historical evolution of the race from its earliest known conditions, and by tracing in the development of his organism the operation of laws which we discover at work under less complex conditions in the rest of nature. When we do that, we find the best reason to believe that the highest faculties of his mind—his intellect and his moral feelings—have not been implanted ready made in his nature at any period of its history, but have been the slowly won results of the accumulated experience of the race transmitted by hereditary action: that is the lesson which observation and induction, applied to the investigation of the origin and development of man's higher nature, teach with an authority which cannot be gainsaid from any standpoint of positive knowledge. I could have wished, had I had time, to have shown you how some phe-

nomena of mental disease, which may be looked upon in this relation as instructive experiments of nature made for us where we cannot make them for ourselves, confirm this induction which has been reached by observation of human development both in the individual and in the race. But I must leave that unsaid, and restrict myself to the conclusion as regards conduct which results from the acknowledgment that the latest and best acquisitions of man have come to him by a process of orderly development through the ages. For the problem of to-day is truly no longer the schoolmen's much vexed question of the origin of evil, but the question of the origin and growth of good. Our plain duty is to find out the laws which have been at work in that process, and to continue it—to carry on by deliberate method, with conscious purpose, the development which has been going on through past ages irregularly and blindly. The time, in fact, has come when mankind should awake to the momentous reflection how great is the power which it may exert over its own destiny, and to the resolution methodically to use it. In fulfilling this paramount duty, upon whom will the function of enquiry and instruction immediately rest but upon those who make the laws of vital development and function their study, and the application of their knowledge to further the well-being and development of the organism their work. Clearly the medical investigator need not lapse into despair because he has no new conquests to make.

You will not be long in practice before you will have many occasions to take notice how little people ever think of the power which they have over their own destiny and over the destiny of those who spring from them—how unconcerned and amazingly reckless they show themselves in that respect. They have continually before their eyes the fact that by care and attention the most important modifications may be produced in the constitution and character of the animals over which they have dominion—that by selective breeding an animal may



almost be transformed in the course of generations ; they perceive the striking contrast between the low savage with whom they shrink almost from confessing kinship and the best specimens of civilized culture, and know well that such as he is now such were their ancestors at one time ; they may easily, if they will, discover examples which show that by ill living peoples may degenerate until they revert to a degraded state of barbarism, disclosing their former greatness only in the magnitude of their moral ruins ;—and yet, seeing these things, they never seriously take account of them and apply to themselves the lessons which lie on the surface. They behave in relation to the occult laws which govern human evolution very much as primeval savages behaved in relation to the laws of physical nature of which they were entirely ignorant—are content with superstitions where they should strive to get understanding, and put up prayers where they should exert intelligent will. They act altogether as if the responsibility for human progress upon earth belonged entirely to higher powers, and not at all to themselves. How much keener sense of responsibility and stronger sentiment of duty they would have if they only conceived vividly the eternity of action, good or ill ; if they realised that, under the reign of law on earth, sin and error is inexorably avenged, as virtue is vindicated, in its consequences ; if they could be brought to feel heartily that they are actually determining by their conduct in their generation what shall be predetermined in the constitution of the generation after them ! For assuredly the circumstances of one generation make much of the fate of the next.

In the department of medical practice in which my work mainly lies, I have this amazing recklessness strongly impressed upon me ; for it occurs to me from time to time to be consulted about the propriety of marriage by persons who have themselves suffered from insanity, or whose families are strongly tainted with insanity. You will not be surprised to hear, I dare say,



that I don't think any one who consults me under such circumstances ever takes my advice except when it happens to accord with his inclination. The anxious enquirer comes to get, if he can, the opinion which he wishes for ; and if he does not get that, he goes away sorrowful, and does just what his feelings prompt—that is, gets married when he has fallen in love, persuading himself that nature will somehow make an exception to inexorable law in his favour, or that his love is sufficient justification of a union in scorn of consequences. Certainly I have never met with so extreme a case as I chanced to light upon in a book a short time ago. “I actually know a man,” says the author, “who is so deeply interested in the doctrine of crossing that every hour of his life is devoted to the improvement of a race of bantam fowls and curious pigeons, and who yet married a mad woman whom he confines in a garret, and by whom he has insane progeny.” But I have met with many instances which prove how little people are disposed to look beyond their immediate gratification in the matter. If it were put to two persons passionately in love with one another that they would have children, one of whom would certainly die prematurely of consumption, another become insane, and the third perhaps commit suicide, or end his days in workhouse or in gaol, I am afraid that in three cases out of four they would not practise self-denial and prevent so great calamities, but self-gratification and vaguely “trust the universal plan will all protect !”

Those who pay no regard in marriage to the evils which they bring upon their children, or in their lives to the sins by which the curse of a bad inheritance is visited upon them, may plead in excuse or extenuation of themselves the vagueness and uncertainty of medical knowledge of the laws of hereditary action. We are unable to give them exact and positive information when they apply to us, and they naturally shelter themselves under the uncertainty. Were our knowledge exact, as we

hope it will some day be, we could foretell the result with positive certainty in each case, and so speak with more weight of authority. It is one of the first and most pressing tasks of medical enquiry to search and find out the laws of heredity, mental and bodily, in health and in disease, and, having discovered exactly what they are, to apply the knowledge purposely to the improvement of the race—that is, to prevent its retrogression and to promote its progress through the ages. I see no reason to doubt that by discovery of these laws and intelligent practical use of our discoveries we might in the fulness of time produce, if not a higher species of beings than we are, a race of beings at any rate as superior to us as we are superior to our primeval ancestors: the imagination of men seems indeed, in the Gods which they have created for themselves, to have given form to a forefeeling of this higher development. But I will not pursue this pregnant matter further now: I have touched upon it only for the purpose of illustrating the large scope of the medical work of the future—which is to discover those laws which have been in operation through the past to make man the superior being which he is, and to determine his future action in intelligent conformity with them; not only to cure disease of body and mind, as it has aimed to do in the past, and to prevent disease, as its larger aim now is, but to carry on the development of his nature, moral, intellectual and physical, to its highest reach.

So much, then, concerning the three topics of which I have proposed to myself to discourse in this lecture—namely, the nobility of your direct function as healers of disease; the excellence of the method of medical study as a means of intellectual and moral training, and its fruitfulness in benefits to mankind; and the grandeur and the reach of its aspirations for the future. Let me hope that I have, in fulfilment of my design, said enough to satisfy you that you have made a good choice of a profession for your life's work. Having chosen, it

remains only that you should justify your choice by your work, so that it may be said of each of you when his long day's task is over and the night has come, that he was in his right position in the world and made a right good use of it. Life has its three stages—youth, manhood, old age: let it be your anxious care now, in the first stage of joy and hope, so to pass the second stage of work and duty, that the last stage may not be a long regret.

I will ask your indulgence only for a few minutes more, while I detain you for one or two final reflections of what I may call an inhibitory character. In pursuing resolutely the course of scientific enquiry which I have indicated, it must needs be that offences sometimes occur, for we can hardly fail to come into collision with some of the prejudices and traditions of mankind. I do not see how it is possible, for instance, to prosecute the physiological investigation of mind to its furthest reach without shaking the foundations of the metaphysical notions which have been held concerning it and its functions; and with the fall of these notions, long-cherished of mankind, other notions that are bound up with them may totter to their fall. But if this must be, we shall do well to acknowledge it more in sorrow than in anger. Let us not rush with eager fury and exultant clamour to the work of destruction; it behoves us, as products of the past, who will one day ourselves constitute the past, to deal gently and even reverently with it; we cannot break with it if we would, nor should we if we could. The very language which we use we owe to the slow acquisitions of generations which have preceded us; we cannot compassionate or condemn them except in words for which we are indebted to them. There is hardly a word which I have used in this lecture which, were its history searched out, does not mean generations of human culture to which we are heirs. Seems it not then a wicked, almost a sacrilegious, thing to hasten with eager gladness to repudiate the past to which we

owe everything, and to exult over the ruins of its beliefs? It is as if a son should rejoice over his father's feebleness, uncover his nakedness, and make scorn of his infirmities. As he who has been the best son is in turn the best father, so the generation which guards with respect the good which there is in the past, and puts gently aside that which is effete, will make the most stable progress in its day, and transmit the best inheritance to the generation which follows it. No doubt in the future, as in the past, the knowledge of one period will sometimes appear foolishness at a more advanced period of human evolution—the truth of one age become the laughing-stock of the next; but we may profitably reflect that decaying doctrine had its use in its day, and it may teach us modesty to consider that much which has its place in our mental organization now, and is serving its proper end in the development thereof, will one day probably be put aside as obsolete belief. Let it be our prayer that when that day comes, and this generation comes up for critical judgment as a historical study before the tribunal of posterity, it may be said justly of it, that it has done as much for the progress of mankind as some of the generations upon which the wisest of us are apt to look back with indulgent compassion, and the unwise among us with foolish scorn.

There is nothing in the attitude of modern society towards science, cold and suspicious as it may sometimes be, which necessitates or warrants an arrogant, defiant, and aggressive spirit of hostility on its side. No great courage is required now-a-days to declare a new truth, however hostile it may be to received belief, nor is any serious suffering entailed by the declaration; there is no need, therefore, for a scientific man to put on the airs of a martyr. He is a very little martyr who is persecuted only by the pens of unfriendly critics, and rather a pitiful object when he sits down by the wayside and calls upon all them that pass by to behold and see how hardly he is used. It was very different when science first made its voice heard:



when, under the cruel persecutions of the Inquisition, Galileo unsaid with his tongue truths which his heart could not unsay, and that grand figure in the noble army of scientific martyrs, Giordano Bruno, went calmly and resolutely to the stake rather than utter one word of retractation. The saddest contemplation in the world perhaps is that of the brave who, like him, have died fighting in the battle for the cause that seemed to perish with them; whose lives of suffering and sore travail have set, often through cruel tortures, in black clouds of gloom which no ray of hope could penetrate. Theirs was not the laurel crown of victory after the agony of the struggle; no popular applause, no encouraging shout, greeted their ears as they sank down exhausted in death; the shouts which they heard were shouts of execration, and their crown was the martyr's crown of thorns. We have, happily, fallen on better days: the secrets which we win from nature we may proclaim without fear, and in the confident assurance that, after being proved and tried, they will be accepted: we are fighting a winning fight, and the stars in their courses are with us. What cause, then, for arrogant self-assertion, overbearing aggression, and wilful determination to seek occasions of offence? The advantages of our position and strength entail the responsibility of moderation and forbearance; for the strength is not our own—it is the power of the universe working in us to its higher ends.

One may esteem science duly, then, without feeling sympathy with the aggressive delight with which some persons accentuate its hostility to expiring doctrines, and exult in the overthrow of articles of faith which have sustained and solaced multitudes of men in the dark hours of life and in the darker hour of death. It can be no pleasure to a generous nature, inevitable though it be, to shatter the faith of even the poor Indian who, driven from his hunting grounds by the inexorable fate of a stronger race, looks upwards with feeble faith to a Great Spirit, and forwards with dim hope to the



happy hunting grounds far away where the sun goes down. To aspire to be the first to proclaim the downfall of a position of refuge to which men have clung with passionate earnestness for many generations, seems to show "a pitiful ambition in the fool who uses it," a singular blindness to the essential continuity of development, a strange ignorance of what is the final end of all science. A scientific discovery is a very good thing in its way, but it is only a means to an end after all—the improvement of man's estate, that is to say, his moral and intellectual as well as his material state; and when he who has been happy enough to discover a new metal, or a new star, or a new cell, or a new salt, magnifies himself mightily, and fondly dreams of an immortal fame, one can't help some such feeling of the ludicrous as would be raised by the spectacle of a hodsman who, having carried his brick to the building in course of construction, should call upon all the world to take notice of the wonderful work which he had done in architecture.

Science has yet to realise, at any rate its cultivators seem oftentimes to forget, that its end must be constructive; that after analysis must come synthesis; that all the analytical work in the world will leave matters in a chaotic state until the constructive spirit, moving over their surface, shall organise the incoherent results, and make them serve for a higher social development. The problem is to make straight in the future a highway over which mankind may pass to a higher life. The philosopher who, with far-reaching eye, overlooks the relations of sciences; the poet who reveals subtleties of human feeling, gives lofty utterance to human sympathies with nature, and infuses nobler aspirations into men; the preacher of human brotherhood who, inspired with strong moral feeling, proclaims the lessons of self-renunciation and of duty to neighbour;—these are brighter stars in the firmament of human genius than the scientific discoverer. The discovery of the law of gravitation is the grandest attainment of scientific

thought; but can we justly compare the effects of that generalization upon human interests and happiness with the elevating influence which is exerted by the poetry of Isaiah or of Shakspeare upon multitudes throughout the world; which is perhaps being felt at this very moment by fireside or on sick-bed in distant lands—by the solitary dweller on the skirts of the vast forests of Western America, in the great lone land of Canada, in the farthest depths of the Australian bush? Science has not rendered the philosopher, the poet, and the moral teacher superfluous, nor will it ever supersede them; on the contrary, it will have need of them to attain to its own perfect working to the bettering of man's estate; and it may well seem to some that the time has come when its manifold, scattered, and somewhat anarchical results should be penetrated by the synthetic insight of the philosopher, be embodied in forms of beauty by the poet's imagination, and utilized by the moral teacher to guide and promote the progress of mankind. So long as man sees splendour in the starry heavens, beauty in the aspects of nature, grandeur and glory in self-sacrifice, so long will he feel that his brief conscious life is but a momentary wavelet on the vast ocean of the unconscious; that there is in him the yearning of something deeper than knowledge, which "cometh from afar," and which the laboured acquisitions of science will ever fail to satisfy.

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